

Date: Monday, 1/7/2008 3:39:42 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 02.750 SUPPORT
 Job Number : 36647
 Estimate Number : 10829
 P.O. Number :
 This Issue : 1/7/2008 S.O. No. :
 Prsht Rev. : NC Drawing Number : D28931
 First Issue : 1/1 Project Number : D2893 REV B
 Previous Run : 35579 Type : MACHINED PARTS Drawing Revision : B
 Material :
 Due Date : 2/5/2008 Qty: 12 Um: Each
 Written By :
 Checked & Approved By : JA 08.01.8
 Comment : Est: C 02.11.26 Reformat; Added P/O KJ
 est D 06.04.19 removed alodine EC
 Est Rev:E Added priming as per Rev B 07-04-30 JLM

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 PG 3 PURCHASING



Comment: PURCHASING

Issue P/O: 5408C208/01/09 (12)

Description: D6104-005

Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104

Material release note required.

2.0 D6104005 17-4 SS Roundbar 4.00"OD



(12)

Comment: Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s)

Support

D 2893-1B 3664720 08/03/19

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect for Transit Damage

Ensure Material Release Note is attached

C208/01/11

(12)

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

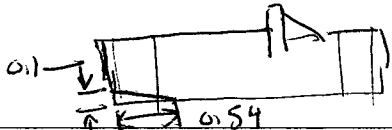



Turn blank for Haas as per Folio FA081

20 08/03/19

(12)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2893-1 PAR #: N/A Fault Category: Prod / Machine NCR: (Yes) No DQA: D Date: 08/04/16
(D212-64) QA: N/C Closed: D Date: 08/04/16

NCR: <u>36647</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08.04.16	6	CORNER OF SUPPORT WAS CUT TOO MUCH. IMPERFECTION WAS BLENDED OUT. CORNER CHAMFERED BY 0.10 x 0.54"	CP 08.04.16 PS1042	PART ACCEPTABLE 	 08.04.16	 08/04/16	CP 08.04.16 PS1042	 08/04/16

NOTE: Date & initial all entries

Date: Monday, 1/7/2008 3:39:42 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.750 SUPPORT

Job Number: 36647

Part Number: D28931

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

AD 08/03/03

(12)

6.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS 1

Machine as per Folio FA081
Tumble & Deburr

BF 08-04-13

(13)

7.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT ALL DIM TO DIM SHEET

BF 08-04-13

(12)

8.0

QC8

SECOND CHECK



Comment: SECOND CHECK

TR 08/04/14

(12)

9.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3
Mask Inside Bore for Priming

M107550

FL 08/04/14

(24)

10.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

ml 08 04 14

(12)
(24)

Prime inside surface as per Dwg D2893 and QSI 005 4.3.

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

25 08-04-15

(24)

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock
Location: LG

ml 08 04 15

(24)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/04/14	#6.D	one support has the 0.250" dia. with a cut out in it. (a large deformity) R.C. the machinist had a short holder and the part hit the part causing it to lift.		Part is accurate. Blend mark is to be so noticeable	P 08/04/14			
				SEE PAGE ONE				

NOTE: Date & initial all entries

Date: Monday, 1/7/2008 3:39:42 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.750 SUPPORT

Job Number: 36647

Part Number: D28931

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC21

FINAL INSPECTION/W/O RELEASE



08/04/16 *[Signature]*

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF 08-04-16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 36647
Description: Ø2.750 Support	Part Number: D2893-1
Inspection Dwg: D2893 Rev. B	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev B / DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	2.707	2.712		2.711	2.711	2.712	2.712		
B	4.946	4.966		4.957	4.957	4.957	4.957		
C	3.064	3.084		3.073	3.073	3.073	3.073		
D	0.718	0.738		.725	.725	.725	.725		
E	0.090	0.110		.103	.100	.100	.100		
F	2.934	2.954		2.943	2.943	2.943	2.943		
G	2.166	2.186		2.176	2.176	2.176	2.176		
H	3.890	3.910		3.897	3.897	3.897	3.897		
I	0.914	0.934		.927	.924	.924	.924		
J	0.022	0.042		.032	.032	.032	.032		
K	0.109	0.129		.119	.119	.119	.119		
L									
HAAS Section									
AA	2.985	3.005		2.992	2.993	2.992	2.994		
AB	0.440	0.460		.440	.440	.440	.440		
AC	0.125	0.160		.145	.145	.149	.145		
AD	0.040	0.060		.042	.043	.042	.043		
AE	0.188	0.193		.189	.189	.189	.189		
AF	0.125	0.160		.143	.143	.144	.142		
AG	0.140	0.160		.159	.157	.152	.149		
AH	1.360	1.400		1.373	1.370	1.372	1.368		
AI	0.040	0.060		.051	.050	.049	.053		
AJ	1.190	1.230		1.214	1.210	1.212	1.213		
AK	0.010	0.020		.015	.015	.015	.015		
AL	0.053	0.073		.063	.063	.063	.063		
AM	0.240	0.260		.250	.250	.250	.250		
AN	2.518	2.538		2.538	2.538	2.538	2.538		
AO	84.39	90.39		87.39	87.39	87.39	87.39		
AP	0.261	0.266		.260	.260	.260	.260		
AQ	0.053	0.073		.063	.063	.063	.063		
AR									
AS									
Accept/Reject									

Measured by: <u>RL</u>
Date: <u>08/03/23</u> / <u>08/04/11</u>

Audited by: <u>MR</u>
Date: <u>08/04/14</u>

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	
B	07.05.08	Dimension AP revised	KJ/JLM	

DART AEROSPACE LTD	Work Order:	36647
Description: Ø2.750 Support	Part Number:	D2893-1
Inspection Dwg: D2893 Rev. B		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2893 Rev B / DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	15	26	37	48	By	Date
Lathe Section									
A	2.707	2.712		2.711	2.711	2.711	2.712		
B	4.946	4.966		4.957	4.957	4.957	4.958		
C	3.064	3.084		3.073	3.073	3.073	3.073		
D	0.718	0.738		.725	.725	.726	.726		
E	0.090	0.110		.101	.101	.100	.100		
F	2.934	2.954		2.943	2.943	2.944	2.944		
G	2.166	2.186		2.175	2.175	2.176	2.176		
H	3.890	3.910		3.898	3.898	3.897	3.898		
I	0.914	0.934		.924	.924	.924	.925		
J	0.022	0.042		.032	.032	.032	.032		
K	0.109	0.129		.119	.119	.119	.119		
L									
HAAS Section									
AA	2.985	3.005		2.994	2.994	2.994	2.994		
AB	0.440	0.460		.440	.440	.440	.440		
AC	0.125	0.160		.147	.147	.147	.147		
AD	0.040	0.060		.042	.042	.042	.042		
AE	0.188	0.193		.189	.189	.189	.189		
AF	0.125	0.160		.145	.145	.145	.145		
AG	0.140	0.160		.151	.150	.150	.150		
AH	1.360	1.400		1.370	1.370	1.370	1.370		
AI	0.040	0.060		.053	.053	.053	.053		
AJ	1.190	1.230		1.215	1.215	1.215	1.215		
AK	0.010	0.020		.015	.015	.015	.015		
AL	0.053	0.073		.063	.063	.063	.063		
AM	0.240	0.260		.250	.250	.250	.250		
AN	2.518	2.538		2.538	2.538	2.538	2.538		
AO	84.39	90.39		87.39	87.39	87.39	87.39		
AP	0.261	0.266		.266	.266	.266	.266		
AQ	0.053	0.073		.063	.063	.063	.063		
AR									
AS									
Accept/Reject									

Measured by:	RP / BF / J.L.
Date:	08/03/23

Audited by:	JMK
Date:	08/04/14

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	
B	07.05.08	Dimension AP revised	KJ/JLM	

DART AEROSPACE LTD		Work Order:	36647
Description: Ø2.750 Support		Part Number:	D2893-1
Inspection Dwg: D2893 Rev. B		Page 1 of 1	

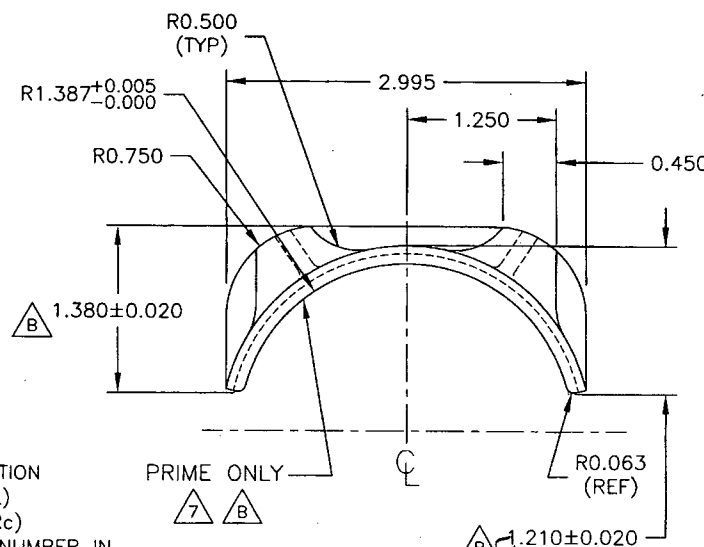
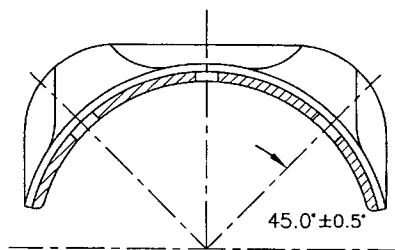
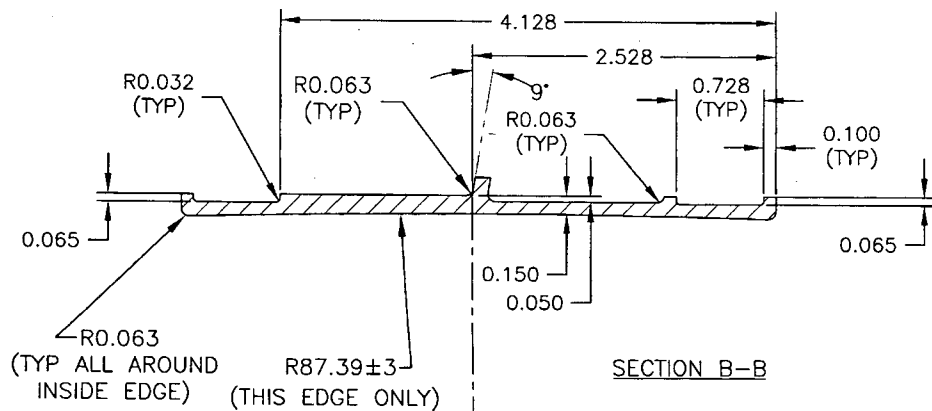
Inspect dimensions highlighted on inspection sheet drawing D2893 Rev B / DSK078 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	19	210	311	412	By	Date
Lathe Section									
A	2.707	2.712		2.711	2.711	2.712	2.712		
B	4.946	4.966		4.958	4.958	4.957	4.957		
C	3.064	3.084		3.073	3.073	3.073	3.073		
D	0.718	0.738		.725	.725	.725	.725		
E	0.090	0.110		.100	.100	.100	.100		
F	2.934	2.954		2.943	2.943	2.943	2.943		
G	2.166	2.186		2.176	2.176	2.176	2.176		
H	3.890	3.910		3.897	3.897	3.897	3.897		
I	0.914	0.934		.927	.924	.924	.924		
J	0.022	0.042		.032	.032	.032	.032		
K	0.109	0.129		.119	.119	.119	.119		
L									
HAAS Section									
AA	2.985	3.005		2.994	2.994	2.994	2.994		
AB	0.440	0.460		.440	.440	.440	.440		
AC	0.125	0.160		.147	.147	.147	.147		
AD	0.040	0.060		.042	.042	.042	.042		
AE	0.188	0.193		.189	.189	.189	.189		
AF	0.125	0.160		.145	.145	.145	.145		
AG	0.140	0.160		.150	.150	.150	.150		
AH	1.360	1.400		1.370	1.370	1.370	1.370		
AI	0.040	0.060		.053	.053	.053	.053		
AJ	1.190	1.230		1.215	1.215	1.215	1.215		
AK	0.010	0.020		.015	.015	.015	.015		
AL	0.053	0.073		.063	.063	.063	.063		
AM	0.240	0.260		.250	.250	.250	.250		
AN	2.518	2.538		2.538	2.538	2.538	2.538		
AO	84.39	90.39		87.39	87.39	87.39	87.39		
AP	0.261	0.266		.261	.261	.261	.261		
AQ	0.053	0.073		.063	.063	.063	.063		
AR									
AS									
Accept/Reject									

Measured by:	RF
Date:	08/03/21

Audited by:	mf
Date:	08/04/14

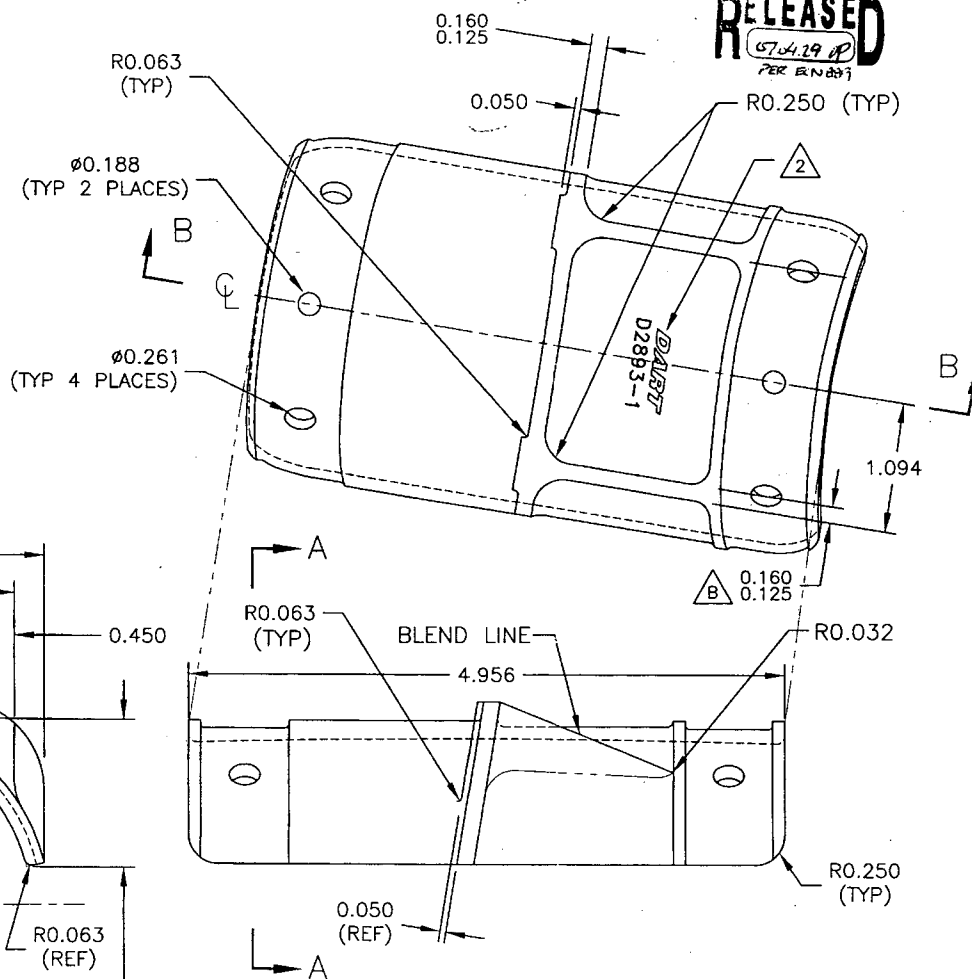
Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	
B	07.05.08	Dimension AP revised	KJ/JLM	



D2893-1

- 1) MATERIAL: 17-4 PH STAINLESS STEEL
HEAT TREAT TO H900 CONDITION
(900°F FOR 1 HR, AIR COOL)
MIN UTS = 170 KSI (38 HRC)
- 2) IDENTIFY WITH DART LOGO AND PART NUMBER IN
THIS AREA WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP
- 3) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES
- 7) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3
PRIME INSIDE SURFACE AS SHOWN PER DART QSI 005 4.2

NO. 36647
WORK ORDER
UNCONTROLLED COPY
RETURN TO
SHOP COPY
ENGINEERING
SUBJECT TO AMENDMENT
WITHOUT NOTICE



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DART AEROSPACE LTD.

B	07.03.16	UPDATE DIMS AS MFG., PRIME INSIDE
A	01.01.10	NEW ISSUE
DESIGN	DP	DRAWN BY BH
CHECKED	#	APPROVED #
DATE	07.03.16	DRAWING NO. D2893
		TITLE Ø2.750 SUPPORT
		REV. B SHEET 1 OF 1 SCALE 1:1

RELEASED
67429 DP
PER EN893

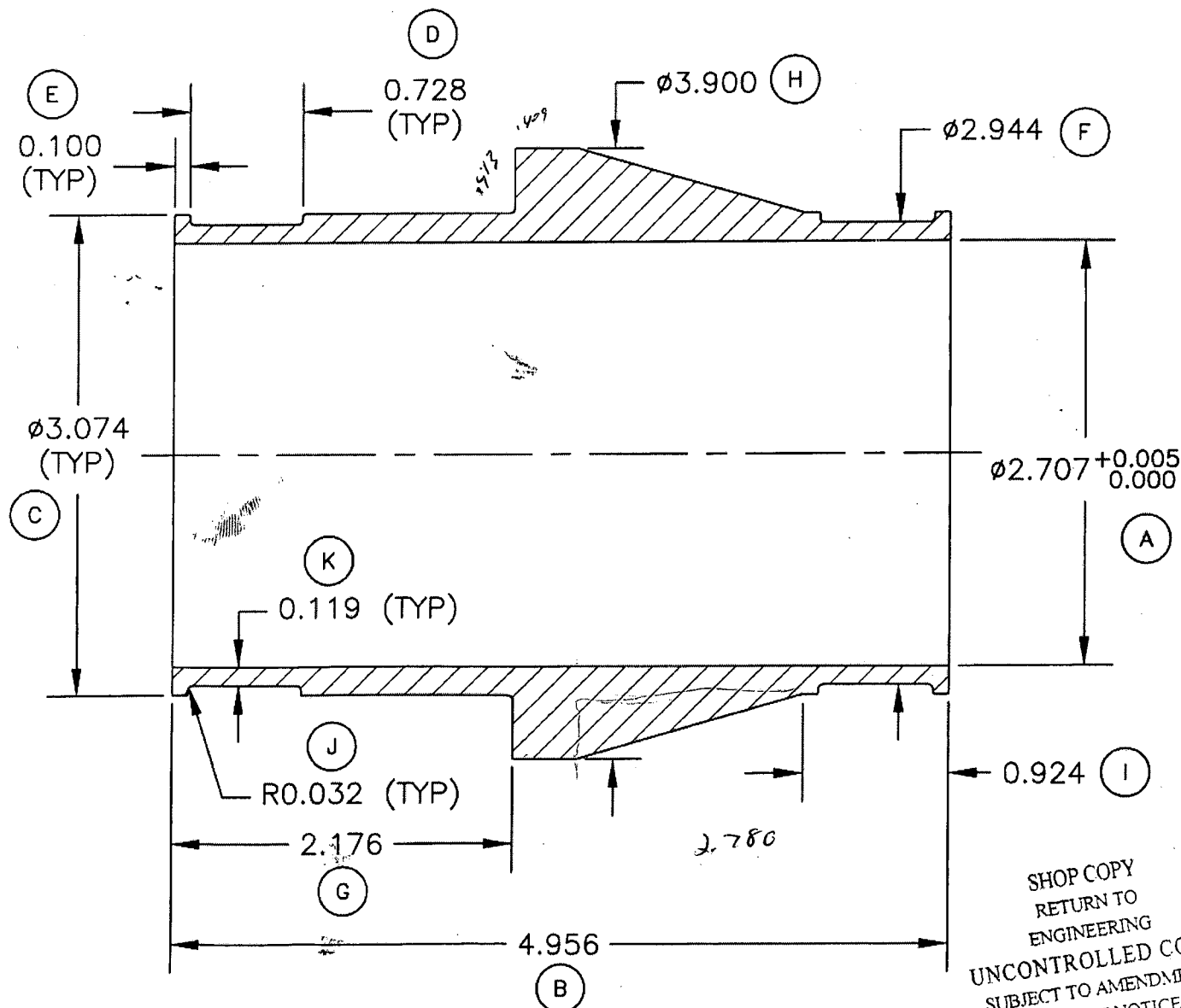
DART

DART AEROSPACE LTD.
HAWKESBURY, ONTARIO, CANADA



DESIGN RF	DRAWN BY RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED JH	APPROVED JH	DRAWING NO. DSK 078	REV. A SHEET 1 OF 1
DATE 03.05.20		TITLE TURNING DETAIL FOR D2893-1	SCALE 1:1
A	03.05.20	NEW ISSUE	

RELEASED
03.07.01



D2893-1 TURNING DETAIL

SHOP COPY
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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 36647

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CERTIFICATE OF TESTS
CERT SERIAL# 000577659
ABNAEMEPRUEFZEUGNIS
CERTIFICAT DE CONTROLE

TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
205 Talley Metals Lane
McBee, SC. 29101 Tel: (616) 208-2000 (800) 338-4592

01/22/07

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKAUFER/VENDEUR PAGE 1 OF 2

MAGNA INOXYDABLE STAINLESS, INC
525 MELOCHE AVE.
DORVAL
QUEBEC
H9P 2W2, CANADA

TALLEY METALS TECH, INC.
ACCOUNTS PAYABLE
P. O. BOX 2498
HARTSVILLE, SC 29551

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
063970-JC-008	W53994		

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: **G12306**
PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
SPECIFICATION: TALLEY 174-T1A CAP OF H900 (01/11/99)
AMS 2303 REV E (10/ /01)
AMS 2315 (REAFFIRMED) REV E (04/ /06)
AMS 5643 REV Q (01/ /03) (EXCEPT CD ROUND CHEM & MECH PROPS ONLY)
ASTM-A484-05A
ASTM-A564-04
ASME-SA564 2004 EDITION

SIZE 4.000000 IN. (101.60 MM) RD BAR
PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM) 0.026	MN (XRF) 0.85	SI (XRF) 0.30	P (XRF) 0.021	S (COM) 0.027	CR (XRF) 15.23
NI (XRF) 4.18	MO (XRF) 0.33	CU (XRF) 3.74	N (FUS) 0.030	CB (XRF) 0.25	TA (XRF) LT .01
CB+TA 0.26					

DISCS MACROETCHED AND APPROVED
HARDNESS AS SHIPPED, HB - 340 (MIDRADIUS)
MAGNETIC PARTICLES: FREQUENCY = 0 / SEVERITY = 0
MICROSTRUCTURE - FERRITE .40%
CAPABILITY
900 F (482 C), 01 HR AIR COOL
HARDNESS, HB - 423.0
SOLUTION ANNEALED 1900 F - 1 HOUR - RAPID COOL (CONVERTED FROM TENSILE STRENGTH)
CONTINUED ON NEXT PAGE

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BS - 083 (REV)

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROL

CERT SERIAL# 000577659


TALLEY METALS
 A Carpenter Company

 Talley Metals Technology, Inc.
 205 Talley Metals Lane
 McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4591

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01/22/07

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDEUR PAGE 2 OF 2

 MAGNA INOXYDABLE STAINLESS, INC
 525 MELOCHE AVE.
 DORVAL
 QUEBEC
 H9P 2W2 , CANADA

 TALLEY METALS TECH, INC.
 ACCOUNTS PAYABLE
 P. O. BOX 2498
 HARTSVILLE , SC 29551

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE

CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE

DATE/DATUM/DATE

WEIGHT/GEWICHT/POSD

063970-JC-008

W53994

 HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE:
 CAPABILITY

G12306

900 F (482 C), 01 HR

AIR COOL

 YIELD STRENGTH, (0.20 %) KSI (MPA)
 TENSILE STRENGTH, KSI (MPA)
 ELONGATION IN 2.00", %
 REDUCTION OF AREA, %
 HARDNESS , HB

 190.0 (1310)
 213.0 (1469)
 13.0
 41.0
 419.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED

 MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A.
 MATERIAL SUPPLIED COMPLIES WITH THE REQUIREMENTS OF DFARS 252.225.7014
 (JUNE 2005) ALT.1 AND SUBSECTION 225.872.1.
 WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE
 PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS
 PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1B OF EN 10204 (DIN50049)

 TIMOTHY DUVAL
 QUALITY ASSURANCE REP.
 CARPENTER TECHNOLOGY CORPORATION

Timothy M. Duval

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